NetLets:
Mechanisms for Measurement-Based End-to-End Performance

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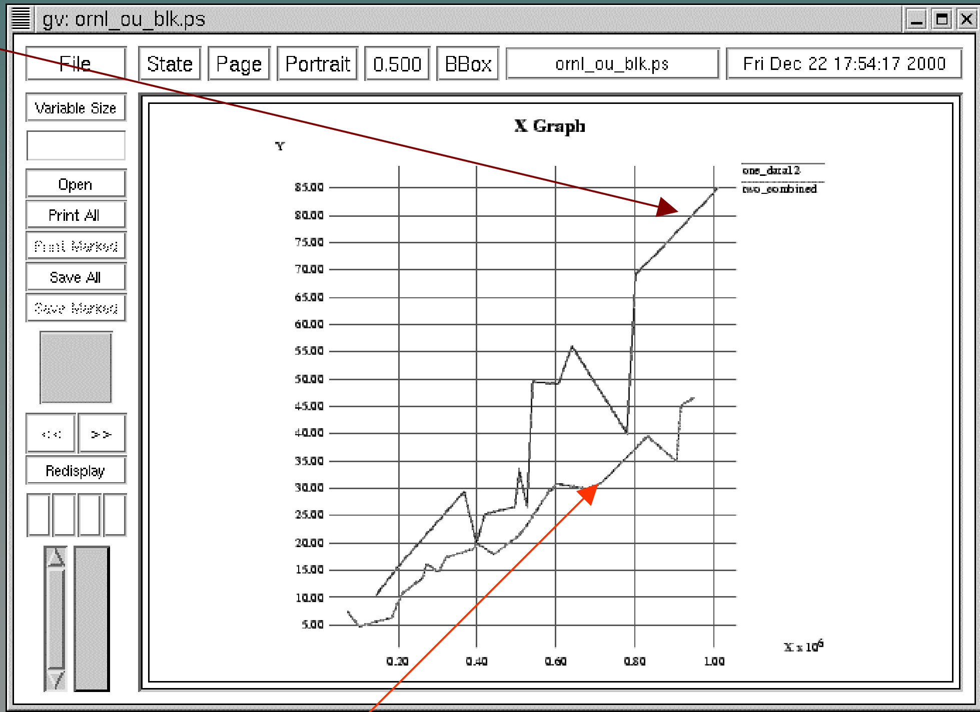
UCSD

Internet Measurements



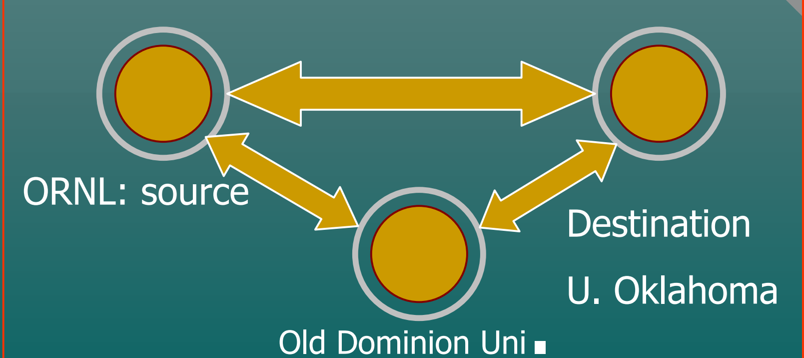
<u>Objective:</u>

End-to-end delay minimization for ORNL-OU

<u>Solution:</u>

Two-paths via NetLets:

ORNL-OU, ORNL-ODU_OU

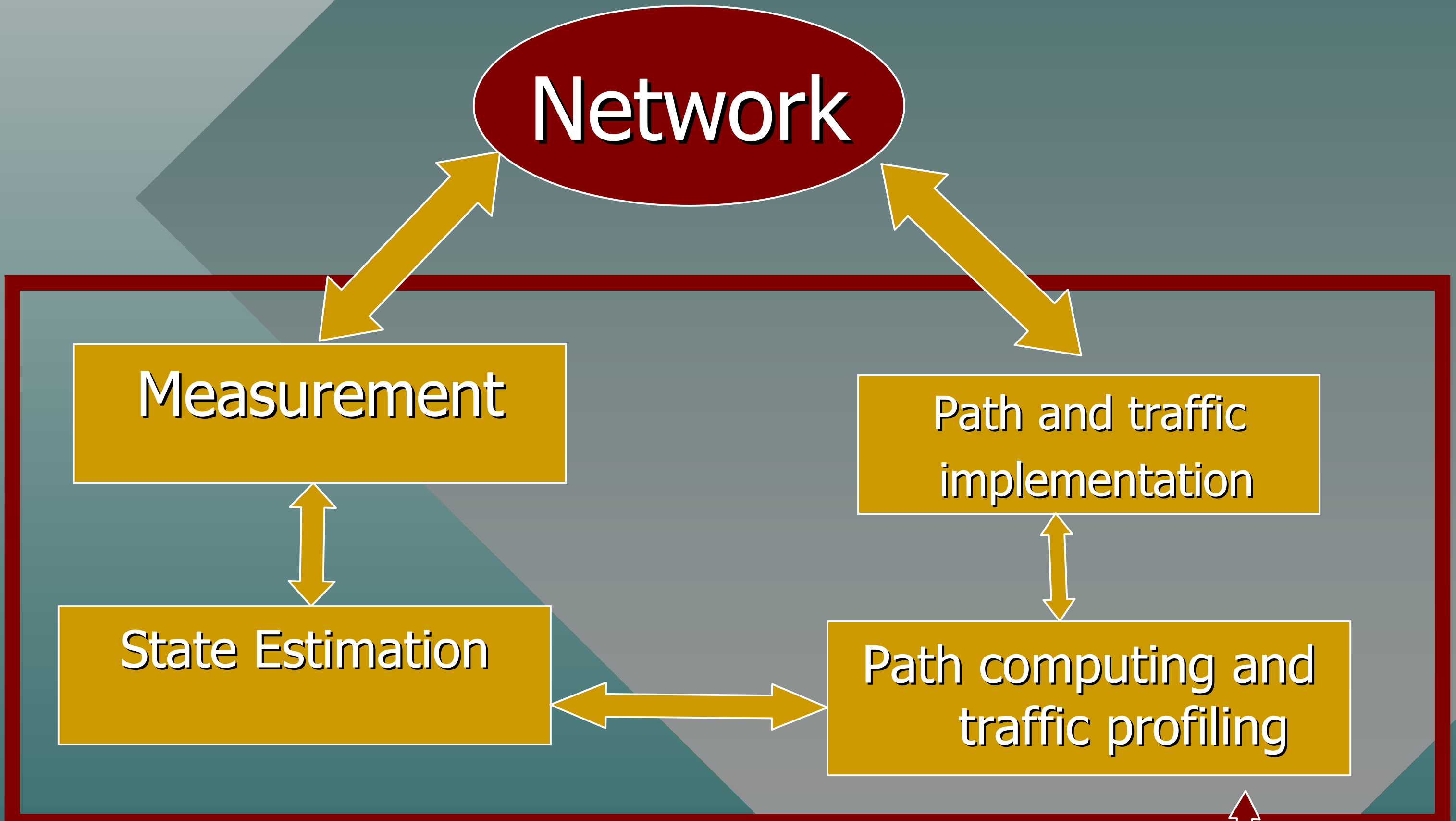


Advertisement:

If your delays look like top curve, NetLets make them look like bottom curve

- with no support from routers

NetLet Daemons:
Implemented on top of TCP/IP stack



Use measurements to estimate delay regressions

to provide end-to-end minimization

Performance Guarantees: End-to-End delay

<u>Method</u>: Regression based on delay measurements, followed by path computation

Given only measurements of sufficient (finite) size

Performance guarantee:

$$P\left\{\left[T(\hat{P}_R, R) - T(P_R^*, R)\right] > \varepsilon\right\} < \delta$$

irrespective of the joint delay distributions

Informally, end-to-end delay of computed path is within specified tolerance of optimal with a specified probability

Analysis helped implementation:

1. Appropriate measurements and their optimization
2. Performance savings are real